

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**UNITED STATES UTILITY PATENT APPLICATION**

Inventor: Sam HAFIF

Title: A BACKPACK HAVING A  
DETACHABLE WHEELED FRAME

Robert D. Katz (Reg. No. 30,141)  
COOPER & DUNHAM LLP  
1185 Avenue of the Americas  
New York, New York 10036  
(212) 278-0400

Attorney for Applicant

## **A BACKPACK HAVING A DETACHABLE WHEELED FRAME**

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### **FIELD OF THE INVENTION**

This invention relates to a backpack having a detachable wheeled frame, and more particularly to a wheeled backpack and frame combination wherein the backpack  
10 and the frame include a mechanism to attach the backpack to the frame.

### **BACKGROUND OF THE INVENTION**

An increase in awareness of injuries resulting from carrying heavy loads and a need for convertible luggage to meet traveler and commuter demands have led to the  
15 development of backpacks with wheels so that users may wheel their backpack behind them when it is too heavy or inconvenient to carry on their backs.

For example, U.S. Patent Nos. 5,749,503 and Des. 375,402 relate to luggage that may be converted and used as a wheeled-suitcase, a backpack or a hand-carried bag. In addition, U.S. Patent Application Pub. No. 2002/0162716 ("716 application")  
20 shows a backpack that may be attached to a collapsible carrier. According to the '716 application, the backpack or the carrier may have wheels.

Backpacks with wheels and a built in frame tend to be rather uncomfortable for the wearer. One object of the present invention allows the owner to remove the frame when wearing the backpack.

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## **SUMMARY OF THE INVENTION**

The objects of the invention can be attained and the disadvantages of the prior wheeled backpack combinations can be overcome by providing a backpack attachable to a wheeled frame, comprising in combination, a backpack having a main compartment and a wheeled removable frame. The backpack may also have a secondary compartment for carrying the wheeled frame when not in use. The backpack may further include a flap extending from one side of the rear wall to the other side thereof. The flap is releasably secured to the backpack on the other side using one or more fasteners. A wheeled detachable frame carries the backpack, and has a base portion on which the backpack sits, at least one vertical support bar, a handle, and a pair of wheels. The frame includes a pair of fasteners for attaching the backpack to the wheeled frame. The first fastener is located on an upper portion of the frame, and attaches to an upper position of the backpack. The second fastener is located on a lower portion of the frame, and attaches to the lower portion of the backpack. The flap holds the frame against the backpack using snaps or similar fasteners and conceals the frame when attached to the backpack.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

The features and advantages of the invention will become apparent upon review of the following detailed description of preferred embodiments, taken in conjunction with the following drawings, in which:

Fig. 1 is a front view of an embodiment of the wheeled backpack and frame combination of the present invention;

Fig. 2 is a side view of the embodiment of the wheeled backpack and frame

combination of the present invention;

Fig. 3 is a rear view of the backpack and frame combination of the present invention;

Fig. 4 is a rear view of the wheeled backpack and frame combination of the present invention with the flap and straps released;

Fig. 5 is a side view of the wheeled frame and backpack combination of the present invention showing removal of the backpack from the frame; and

Fig. 6 is a front view of another embodiment of the frame for use in the present invention.

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#### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

As shown in Figs. 1-4, the backpack and collapsible frame combination 8 of the present invention includes a backpack 10 releasably mounted on a collapsible wheeled frame 20. The backpack 10 includes a handle 11, a main compartment 12, a front compartment 13, shoulder straps 14 with clips 15, and a flap 16 with snaps 17 or other closures, such as a zipper, Velcro, clips, buttons, and the like. The flap 16 covers a portion of the frame 20 when the backpack 10 is attached thereto, for esthetic enhancement, but the flap 16 may also be padded to improve comfort for the wearer. In addition, the flap 16 helps to secure the backpack 10 to the frame 20. The backpack 10 may be made of nylon or some other durable fabric or material, and can include several compartments and pockets that close with zippers or flaps, to hold books, writing instruments, calculators, cell phones, snacks and the like. The main compartment includes front 50 and rear 52 walls, two side walls, 54, 56 and top 58 and bottom 60 walls. The clips 15 and the snap closures 17 may be any suitable fastening

devices, such as hooks, clips, snaps, Velcro or the like. The clips 15 and snaps 17 may be made from plastic, metal or any suitable material, such as spring steel or brass.

As shown in Figs. 4-5, the wheeled frame 20 includes a base 21, vertical support  
5 bars 22, horizontal support bars 23, a retractable handle 24, an axle 25, wheels 26, fenders 27, a pivoting attachment 28 with one or more fasteners 29, and stabilizing feet 31. The wheeled frame 20 and its components may be made from any suitable lightweight material or combination of materials, for example, aluminum, plastic or the like, or a combination thereof such that the frame 20 can support the weight of a full  
10 backpack 10, while remaining lightweight enough to be handled by a school-age child. The wheels 26 may be conventional solid plastic or rubber wheels, or ball bearing and plastic wheels, such as may be found on in-line skates.

Referring to Figs. 3-5, when attached to the wheeled frame 20, the backpack 10 sits on the base 21. The rear wall 52 of the backpack 10 rests against the front side of  
15 the vertical 22 and horizontal 23 support bars. The backpack 10 is secured to the wheeled frame 20 by securing the pivoting attachment 28 to the backpack 10 with closures, such as snaps 29, that mate with closures on the backpack 10. Preferably, there are two such attachments, one on the upper portion of the frame 20, adjacent the handle 24 on the frame 20, the other adjacent or included in the base 21. The upper  
20 attachment 28 may be hinged or pivoted, and the fasteners 29 attached thereto may be snaps or other fastening devices, such as hooks, clips, Velcro or the like.

In another embodiment, shown in Fig. 6, the upper attachment may be a strip of Velcro or snaps 34 placed directly on a horizontal cross-piece or brace 23, as shown in Fig. 6. Velcro, a well-known and readily available material, widely used in the luggage

industry, usually includes two opposed gripping pieces, often in the form of a tape or ribbon, one side having hooks, and one side having loops. Either side 34 can be attached to the horizontal cross-piece 23, provided its mate gets attached to an adjacent portion of the backpack 10, to help to hold the backpack 10 against the frame

5 20. The lower horizontal support 23 and the base 21 may also include a Velcro attachment 34. As mentioned above, other attachments may be used, including snaps 29.

The snaps 29 may be made from durable plastic or any suitable metal, such as steel, brass or the like. Preferably, the pivoting attachment 28 will include the male or  
10 female portion of a snap 29, while the backpack 10 will have the male portion 29 of the snap or Velcro (for example) in position to join with the one on the attachment 28 to secure the upper portion of the backpack 10 to the frame 20.

Likewise, the frame 20 has an attachment 28 to secure the lower portion of the backpack 10 to the lower portion of the frame 20, or to the base 21 itself. As with the  
15 upper attachment 28, the lower attachment 28 includes one side of a snap or Velcro pair 34, while the backpack 10 has the other side, to provide a secure attachment to the lower portion of the frame 20. Together, the upper and lower attachments 28 releasably secure the backpack to the frame 20, providing for easy removal by the user.

The optional flap 16 on the backpack 10 is wrapped around the back side of the  
20 vertical 22 and horizontal 23 support bars, and is secured to the backpack with snaps 17, Velcro, or other suitable fastening devices. The backpack 10 is also secured to the wheeled frame 20 by wrapping the shoulder straps 14 around the upper horizontal support bar 23 and the vertical support bars 22, and then fastening the clips 15 on the lower portion of the backpack 10.

Still referring to Figs. 4-5, the backpack 10 is detached from the wheeled frame 20 by releasing the snaps 17 from flap 16 of the backpack 10, so that the flap 16 can be opened, and by releasing the snaps 29 so that the pivoting attachment 28 can be hinged upward. The clips 15 are also released to unwrap the shoulder straps 14 from around the vertical support bars 22. Once the backpack 10 is removed from the wheeled frame 20, the flap 16 is refastened to the backpack 10 by snapping together the snaps 17 on each portion. The clips 15 are also refastened to reattach the shoulder straps 14.

When not in use, the wheeled frame 20 may be collapsed by retracting the handle 24 as low as possible into the vertical support bars 22. The base portion 21 may be hinged or pivoted so that it folds upward to become parallel with the vertical support bars 22. Similarly, the stabilizing feet 31 may also be pivoted to fold away into the base 21. The size of the wheeled frame 20 may be further reduced by providing removable wheels 26 and fenders 27.

The folded wheeled frame 20 and its removable parts may be placed in one of the compartments in the interior of the backpack 10 for easy carrying and concealment when not in use, or it may be attached to the backpack 10 using optional Velcro or elastic straps 32. The detached wheeled frame 20 is preferably attached to the backpack 10 on a portion away from the back of a user to avoid discomfort, such as the front or side of the backpack 10.

While this invention has been described in terms of specific embodiments, this invention, including this disclosure and appended claims, is intended to be construed in accordance with the full spirit and scope of the invention, including alternatives, modifications, and equivalents apparent to those of skill in the art.